MTT 3

User's Manual

Version date 16/12/2008

Management Software for
TempStick®,TempStick® Probe,
TempStick®², TSHT and
Starter&Reader Interface

Software version 3.3

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Introduction

The *TempStick* system consists of a datalogger, a software package and two types of interface: the *TecnoStick Interface* is used to connect the datalogger directly to the PC whereas the *Starter&Reader Interface* is a portable device equipped with a display, which can directly program and read the dataloggers, after it has been correctly set up using the PC. Both interfaces may be used concurrently.
The *TempStick* datalogger is a miniaturized temperature acquisition device: its dimensions are 50X22 mm and it's 10 mm high. It has several applications: temperature monitoring of transported and stored goods, monitoring of fridges and freezers and other temperature sensitive environments in conformity with ISO 9001 standards. Its reduced size together with the fact that they do not need an external power supply make the sensors an extremely versatile system for temperature measurement.
Thousands of readings could be stored and then downloaded via the inteface and the application software. Using the software provided in the system, the user can view the acquired data in graphical and tabular format, with the option of exporting the data in *Excel* (.XLS) file format, as well as program the datalogger for future missions.

Every datalogger has its own unique serial number; each datalogger is supplied with calibration certificate, which is valid for one year, in order to guarantee validity of acquired readings.

Note on MTT 3.x

New features since version 2.4 (MTT2-SRI)

This new version of *MTT* changes the previous validation criteria especially used with the *Starter&Reader Interface*, to introduce the MKT, an international standard for the validation of the thermal history of a process. Moreover the *TempStick²* are introduced: its a particular *TempStick* with two sensors, one internal and one external on the probe, which is food grade. Now you can control temperature at the core of the product and its environment of conservation.
Finally, it has been introduced the French translation of the software.

New features since version 2.2

This new version of *MTT* makes the use of the validation criteria more efficient by integrating the *Starter&Reader Interface*. This device enables you to read and program *TempStick* devices without requiring a PC. This manual details the various functions and operating modes of this interface, which makes use of the validation criteria parameters that may be saved in different setup profiles that are transferred to the datalogger when a mission is launched. In this manner one obtains an immediate result and a quick analysis of the acquisitions taken. The unit automatically carries out a series of computations based upon the temperature limits and other parameters you specify, which means that without having a PC at hand, you are immediately told whether the transport was carried out correctly or otherwise.

New features since version 1.0

The version 2.0 of the *MTT* software has several new features that improve the quality of your acquisitions: above all, the acceptability criteria. These criteria, that can be set by the operator who starts the mission, allow to immediately analyse the acquisition course and to know if a transport satisfied the minimal conservation conditions for that product.
More new features are represented by the internal grid of the graph, the possibility to toggle between °C and °F, and the fact that is for *TempStick* only.
Lastly, some more fields are present when downloading a mission: their name can be set by the user and can be edited at the end of the mission by the operator who is analysing the acquisitions. Those fields are present in the *Archive* too and can be used as search parameters among the saved acquisitions.

Compatibility with the old version

If an older version of the *MTT* software is already installed on the computer on which you're about to install the present version, be warned that there might be some incompatibility problems between the two archives.
First of all, the default installation folder of the new version is different from the older one: the past versions were installed in the folder *C:\Program Files\Tecnosoft\MTT* or *\MTT2* or *\MTT2-SRI*, while *MTT 3* is installed in *C:\Program Files\Tecnosoft\MTT3*. The versions can be installed on the same PC without any problem,

since even the desktop icons and the *Start* folders are different, so that users that have installed a previous version can keep using this one (and the saved data) while installing the new one too. It is possible, however, to change the installation of the new software and install it in the folder of the old version: in this way, the new version will be written on the old one and not only there is the serious risk to loose or not read properly your saved data, but the software might not work correctly. We suggest, if you really want to install it in the folder *MTT* or *MTT2* or *MTT2-SRI*, to uninstall the older version from the *Control Panel*.
Moreover, consider that if you have *TecnoButton* dataloggers too, with this new version you won't be able to use them again; so, again, we suggest you to keep the older version too.
If you install the two versions in two different folders, you won't face any problem, unless you try to import the acquisitions saved with version *1.x* with the *MTT 2.0* or *MTT 2 – SRI* or *MTT3*, or to download data with version 2.0 from a logger programmed with the old version. For example, if you saved a mission started and downloaded with the old software and try to import it in the archive of the new version, you might face some problems while displaying the mission parameters.
At the same time, there can be similar problems trying to read data from a device programmed with an older version than the 2.0.
So, we suggest you to keep both versions installed on your computer separately and to eventually uninstall the older one when you think you won't need it any more.

System Requirements

Hardware

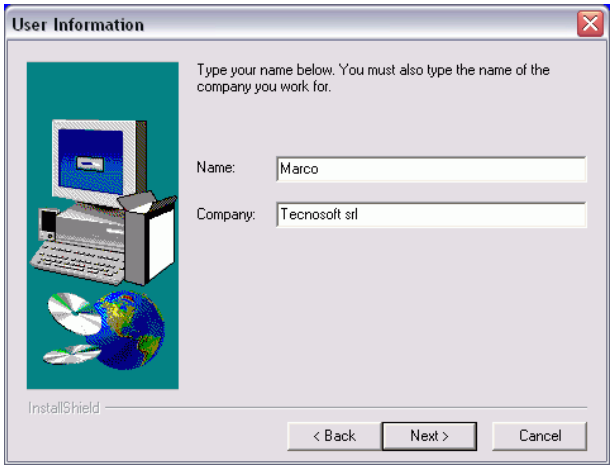
Description	***Minimum***	***Recommended***
Microprocessor	Celeron 300	Pentium III 400
Memory	64 MB	128 MB
Video	800x600; 256 colours	1024x768; 16 Mil. colours
Free serial port (RS232) or free USB port (*TecnoStick Interface*) Free USB port (for *SRI*)		

Software

Description	***Supported***
Operating system	Windows 2000/XP

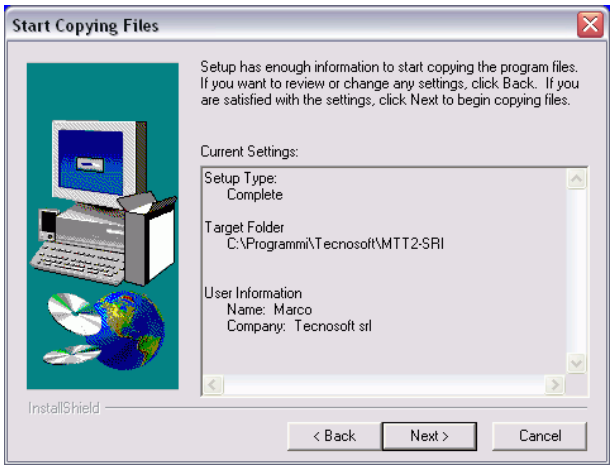
Installation

After having switched on the PC, insert the software CD in your CD-ROM reader; click on **Start – Run** and type “D:\setup.exe” (N.B.: your CD-ROM device could have a different name to “D”).
When the installation program is running, carefully follow the instructions and select your preferred options when requested. Following the welcome window, you will be asked for your details; the *Name* and *Company* fields must be completed prior to clicking on the **Next** button.



The program will then ask you to confirm the installation directory path; by clicking on the browse button one can select a different installation directory. We recommended installing the software in the default directory (C:*Program Files**Tecnosoft**MTT3*). The installation program will then ask for the *Start* menu group in which you would like to install the link from which you can run the *MTT* program.

Click on **Next** to proceed: the last installation window with allow you to confirm and verify all settings prior to proceeding with the installation.

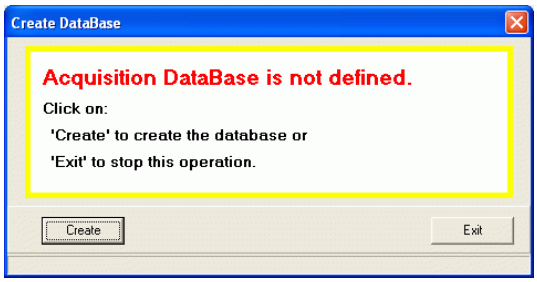

Start Copying Files
Setup has enough information to start copying the program files. If you want to review or change any settings, click Back. If you are satisfied with the settings, click Next to begin copying files.
Current Settings:
Setup Type:
Complete
Target Folder
C:\Programmi\Tecnosoft\MTT2-SRI
User Information
Name: Marco
Company: Tecnosoft srl
InstallShield
< Back
Next >
Cancel

Click again on **Next** and program files will be copied to the hard disk. Once the installation is complete, click on **Finish** to proceed.

Main Operations

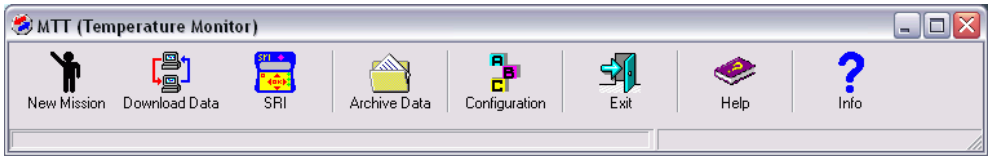
Launching the Program

After the installation is completed, double click on the **MTT3** icon on the desktop to start the program, or select the **Start – Program Files** (or **All the Programs**, if you're using *Windows XP*) **– Tecnosoft – MTT3 – MTT3**. After the program has been started, it may open a window called *Create DataBase* (see chapter *Configuration* at page 15): click twice (not double click) on the **Create** button to proceed.



The Main Window

The *Main Window* of the program will open; it is presented as a bar that will remain positioned at the top of the screen, entitled *MTT (Temperature Monitor)*. The top right corner holds the standard windows buttons (**Minimize**, **Enlarge**, **Close**), and a series of buttons enabling access to the different program functions.

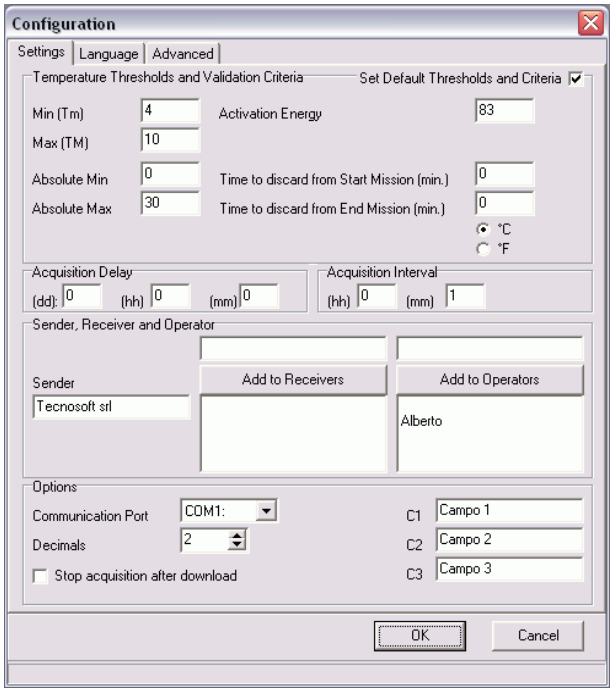


Configuration

Click on the **Configuration** button to open a window holding three labels: *Settings*, *Language* and *Advanced*.

Settings

Here you can change several program settings so that it can be personalized for your requirements.



Temperature Thresholds and Validation Criteria

Before entering the values, you need to set whether the entries you are applying are expressed in °C or °F; this is done by selecting the required option on the bottom right of the area labeled T*emperature Thresholds and Validation Criteria*.

Here you can set the standard *Minimum* and *Maximum Temperature Thresholds* (*Tm* and *TM*) and the parameters for the *Validation Criteria*, with which you want to program your datalogger. If the *Set default Thresholds and Criteria* option is enabled, these values will appear each time you launch a new mission (you may still edit them in the *New Mission* window). If the option is disabled, the most recent values used to program the device will be displayed in the *New Mission* window.

The following parameters can be set for the *Validation Criteria* and the *Thresholds* and are used to calculate the MKT (p.41):

- *Absolute Min* and *Max*: the minimum and maximum temperature that the mission must not exceed in order to consider the transport acceptable;
- *Activation Energy*: an important parameter used when calculating the MKT. Each product has its own value: if you need to control different subtances, use the worst valure (the lowest); if you don't know which value to use, leave 83,6;
- *Time to discard from Start/End Mission (min.)*: a typical mission will have initial and final transitory parts where the data is considered not representative, in that they may refer to periods of time when the datalogger was not actually monitoring transport. To have a precise score, you would therefore set the time (in minutes) representing these two parts of the mission. An example would be the time from when the mission is programmed to when the logger begins reading the temperature in the truck/store/refrigerator, and also the time from when the logger is removed from the truck to the moment the acquisition is saved.

Note: for more information on the use of the validation criteria, the MKT and details on the above parameters, please refer to the chapter The Validation Criteria at p.41.

Acquisition Delay

In this field you may set the time (expressed in days, hours and minutes) from the time you have programmed a new mission to when it will effectively start. Set all these to 0 for the mission to start immediately. (Maximum delay: 45 days, 12 hours and 15 minutes).

Acquisition Interval

The acquisition interval is the period of time that elapses between two successive readings. This parameter must be chosen such that the memory of the device is not filled up within the duration of the mission. For example, since the logger can hold a maximum of 2730 readings, we cannot set this interval to 1 minute if the particular mission is going to last 5 days, since the logger will effectively stop taking readings after 45 hours. (*minimum interval*: 1 minute; *maximum interval*: 4 hours and 15 minutes).

Sender, Receiver and Operator

In this box you can set some parameters that are useful to track down the acquisition mission once it has been stored in the *Archive*. In the *Sender* field you can write the location of origin of the transport or the name of the person or company who started the mission. The other two fields can be completed by adding items to the list. To add an item just enter it in the appropriate field and click the button below it: **Add to Receivers** and/or **Add to Operators**; the entry you have typed in will appear in the list below the button. To delete a name from the list, simply select it by right clicking on it and then select the entry **Delete** (this will appear on a pop-up menu).

Options

The bottom-most box on this window holds some other options to personalize the program. In the *Communication Port* field you should set the PC COM or USB port to which the *Tecnostick Interface* is connected. The second field lets you set the number of decimal digits you want to display throughout this program: use the up and down arrows on the right of the field to select a number between 0 and 2.
The third option allows the software to automatically interrupt a mission when data is downloaded.

Note: this option must be used with care, since if this option is enabled, and you program a delayed start mission and decide to check that the mission has started by downloading the data, you will effectively stop the mission; Even if it has not already started (still waiting for delay to elapse) it will not start at the programmed time, since it has been aborted.

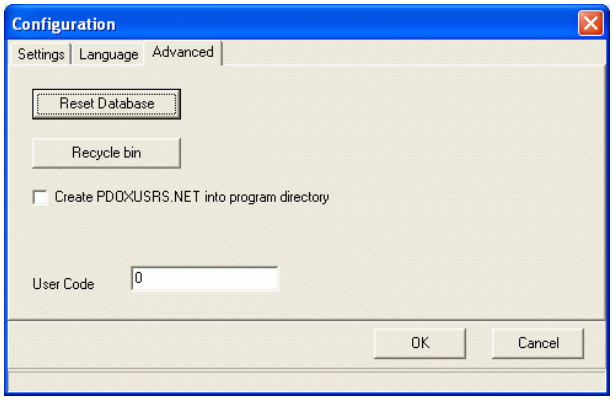
To enable this option select the checkbox labelled *Stop acquisitions after download*.
The last three fields in this page are open titles for three fields that will be available in the database of acquisitions. These field titles are specific to the computer, and are not stored on the device. This means that the person downloading the data may name these fields in a different way to the person launching the mission. This feature has been introduced since in many situations, the person downloading the data may want to add information that might not have been available at the time the mission was launched. An example could be naming one of the fields "Delivery", where the recipient (person downloading the data) may want to add a note such as "on time" or "late". This type of information could not have been predicted when the mission was launched. These fields will be also displayed in the *Archive* and can be used as search parameters.

Language

Here you can select the language of the program either *Italian, English* or *French*.
Each time you change it, you'll have to click on the **OK** button and wait for the program to restart automatically.

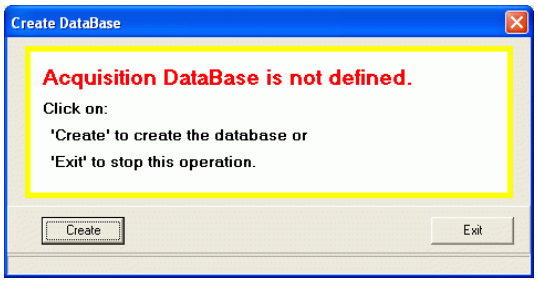
Advanced Options

In the advanced settings page we find two important buttons and two useful options.



Reset Database

Clicking on **Reset Database**, a message will appear and will ask you to reset the *Database Archive* of the readings. In this way the tables of *Archive* will be recreated and emptied (page 29): the saved acquisitions files won't be lost, but you'll have to import them again. Click on **Create** to proceed or **Exit** to cancel.



Recycle bin

When you delete an item from the *Data Archive*, this will not be displayed anymore, but it is not physically deleted: the acquisition file is transferred to the *Data/Del* folder, in the main folder of the program (by default *C:\Program Files\Tecnosoft\MTT2-SRI*). To delete the files permanently you must click on the recycle bin button: a *Report* will be displayed showing the recycle bin status. Click **OK** to continue.

PDOXUSERS.NET Option

In order to function properly, *MTT* requires a specific file, named PDOXUSERS.NET. By default, the installation procedure places this file in the main directory of the PC (c:\). In many companies, computers on a network may not have sufficient access rights to have this file installed in the main directory, since they may only save files to specific folders. By enabling this option, the file in question will be saved to the directory to which the program has been installed (by default *C:\Program Files\Tecnosoft\MTT3*).

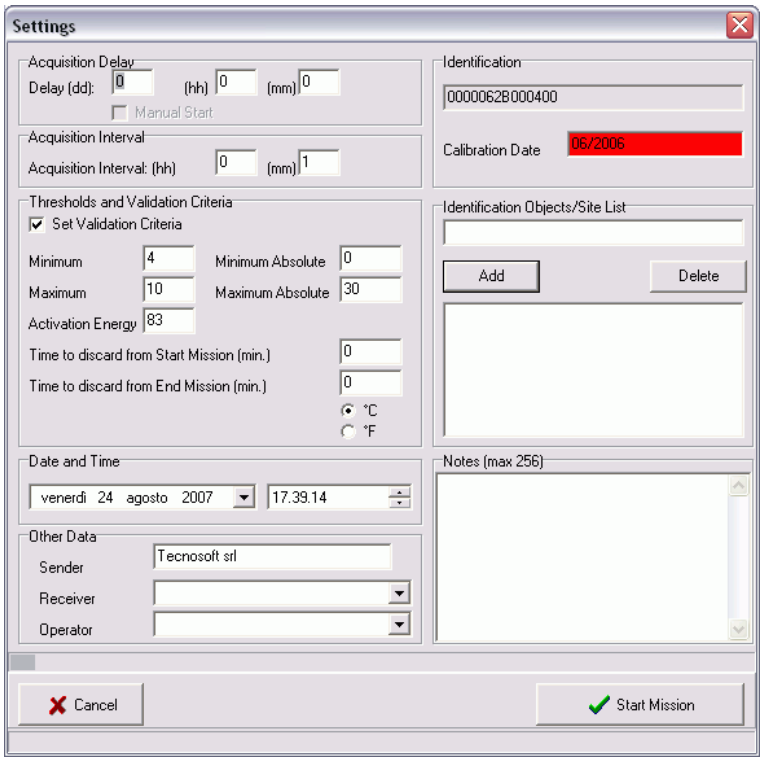
In this manner you may continue to use the program without having to enable full access rights to the main folder of the computer.

User Code

The *User Code* is a specific code used to identify which protected *Tempstick* devices can be read. If you have been supplied with protected devices, your distributor would have supplied this code to you. The code 0 permits all unprotected devices to be read. Protected devices can only be read by means of the corresponding user code.

Start a New Mission (TecnoStick interface)

Before clicking on this button, please ensure that the interface is connected to the PC port, that the corresponding port is the one selected in the configuration page and that a datalogger is inserted in the interface. Clicking on this button in the *Main Window*; will start communication with the datalogger, and after a while the *Settings* window will appear (if the data in the memory of the logger are not in the *Archive*, you will be asked if you want to save them or discard them): it is divided into different sections. If the device is not connected properly the message *Download Error* will appear in the status bar at the bottom of the main window.



Setting the parameters

Acquisition Delay

This setting is used to program a mission that must start after a defined time interval. This is useful if it is preferred that a mission be physically programmed on a particular day, knowing that the datalogger should effectively start acquiring after a number of minutes, hours or days. The total delay is set by programming the days (*dd*), hours (*hh*) and minutes (*mm*) after which you want the device to start make and store readings. The maximum delay is 45 days, 12 hours and 15 minutes.

Acquisition Interval

The acquisition interval is defined as the time between successive acquisitions. You can set this parameter using the hours (*hh*) and minutes (*mm*) field. The acquisition interval may be set from a minimum of 1 minute to a maximum of 255 minutes (4 hours and 15 minutes). This field should be selected carefully such that the memory capacity is not exceeded for the useful length of time of the mission. The device can store a maximum of 2730 readings. *The actual number of readings will depend upon the length of the notes field (see Notes section below) and may be less than 2730*. The appropriate acquisition interval should be selected by computing the formula Acquisition Interval = Mission Duration (Time) / 2730 readings.

Thresholds and Validation Criteria

By setting the the *Temperature Thresholds* (*Maximum* and *Minimum*) according to your particular mission

requirements, you will be able to quickly check whether the temperature has exceeded these limits since the program will display them on the graph after readings have been downloaded. The program will also use them to calculate when and how many times the temperature has gone out of range of these limits. Note that you cannot set the same value for both maximum and minimum. If you have set, in the *Configuration* (page 13), the option that enables the default thresholds, those values will appear here as default values. Otherwise, there the last thresholds you have programmed will be displayed for that specific datalogger. If you set thresholds out of the device's temperature range, the thresholds will be automatically corrected to sit at the temperature range limits of the device.
Note: to learn more regarding the use of the validation criteria, the MKT and the meaning of all other parameters, please refer to the chapter The Validation Criteria at p.41.

Date and Time

In this field, the date and time of the PC is displayed. The *Tempstick* system uses the PC date and time to synchronize time values on the datalogger. Please check that these are correct before launching the mission, since once this has been launched, the device will hold the PC time and date as the actual time and date used to time-stamp the readings. If you note a discrepancy between the actual time and date and that on the PC running the software, you may correct this by double clicking on the time display in the right bottom corner of the Windows taskbar, normally located at the bottom of your screen.

Other Data

In the Other *Data* box you can type in names used to identify the mission you're about to start. In the first field, *Sender*, you will see the same default name typed in the similar field in the *Configuration* window. This item may be changed by deleting its content and typing it a new name. In the other two fields you can directly type in a name or else select a name from the drop down list. Note that new names not present in the drop down list will not be added to the list. To add a name to the list please follow the instructions in the *Configuration* chapter.

Identification

Here you can see the datalogger's unique serial number. You cannot edit this field.

Identification Objects/Sites list

In the upper field of this box you can type in one or more names of items that may help identify the transported objects or the site you're monitoring. Each time you type in a value, click on **Add** or press *Enter* to add it to the list below the field. Select an item and click on **Delete** to delete it.

Note

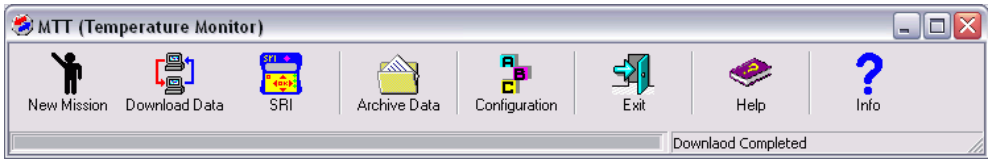
In the *Notes* box you can type additional notes that may be useful for the operator downloading the mission.
Note: each time you add values to the fields described above, the blue progress bar at the bottom of the window will move towards the right hand side. This is an indication of the maximum amount of memory that may be reserved for these parameters. When you reach the maximum limit, the program will inform you that you cannot add any more information, unless you delete some you already added.
Nevertheless, above a certain number of characters within the limit mentioned above, the device will begin storing the additional notes in memory that could have been used for a mission. This results in a reduction in the maximum number of acquisitions that will be stored. Under normal conditions, that is if you input Sender, receiver and operator information and add a few brief notes, the number of acquisitions will not be less than 2730. If you add many notes or many identification objects in the list, you may end up with less available acquisition space.

Programming the datalogger

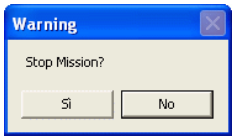
After filling in all the necessary fields with your particular settings, click on the **Start Mission** button to instruct the datalogger connected to the interface to start acquiring data with the settings you have selected. If the delay field has been set to zero, the first acquisition will be made immediately after the software has programmed the device. If the delay is set the first acquisition will be made after the start delay has elapsed.
If you decide not to start the mission, click on the **Cancel** button.

Read the Acquired Data (TecnoStick Interface)

When you want to download the readings from a datalogger, ensure that the interface is connected correctly to the PC and insert the datalogger you wish to read in the serial interface slot. Click on the **Download Data** button and wait until the blue progress bar (located beneath the buttons in the *Main Window)* has reached the right hand side of the progress bar space (this operation might take a while depending on the number of acquisitions stored in the device).



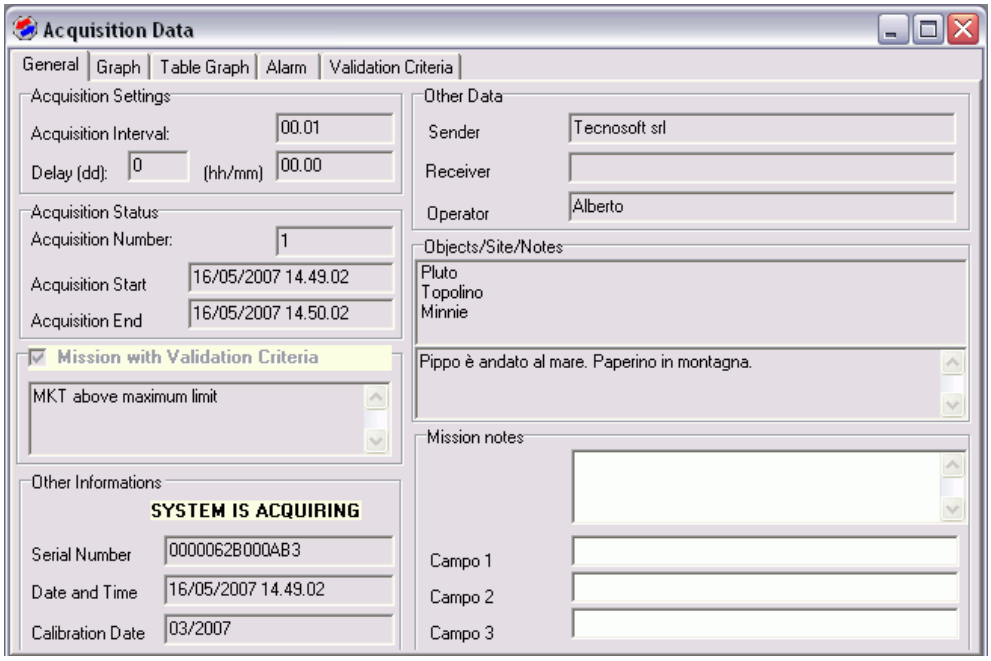
If you selected the option "*Stop Acquisitions after download*" in the *Configuration* window, the *Acquisition Data* window will come up. If the option had not been selected, a message will ask you if you want to stop the acquisitions: answer **Yes** or **No** to proceed.



The *Acquisition Data* window will open. This window has five tabs at the top in which the information stored in the device is sectioned and displayed.

General

This tab shows all the programming parameters set by the operator who started the mission, subdivided into sections:



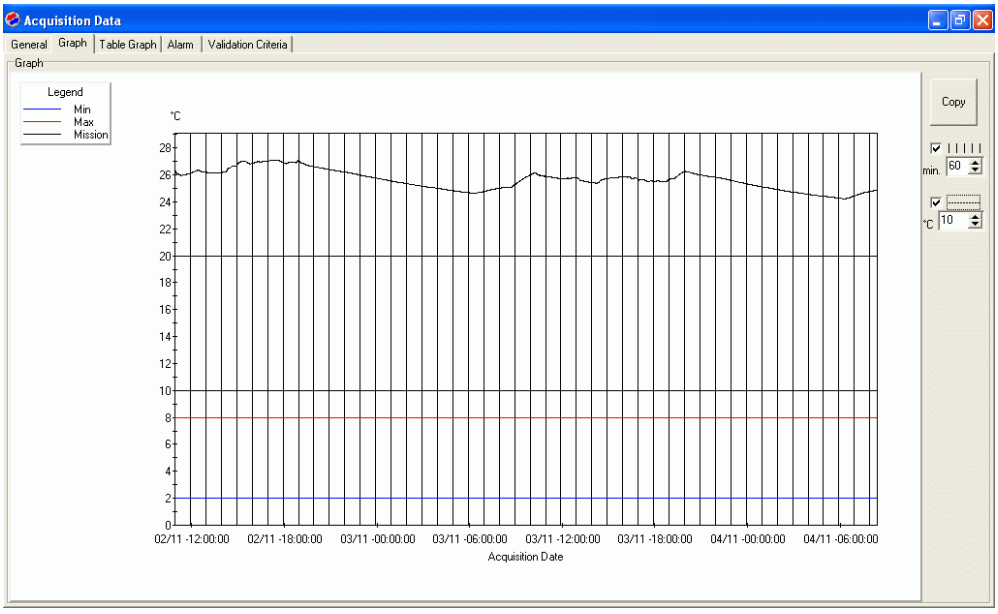
- *Acquisition Settings:*
  - *Acquisition Interval:* acquisition interval between two acquisitions.
  - *Delay:* the delay time between programming and start of the mission. In the first field there are the days (*dd*), while in the second there are the hours and minutes (*hh/mm*).
- *Acquisition Status*:

  - *Acquisition Number:* shows the number of acquisitions recorded.
  - *Acquisition Start/End:* the date and time of the first and final acquisition of the mission you've downloaded.
- *Mission with Validation Criteria*: if this option is checked, the Validation Criteria have been applied to this mission and her there will be displayed the result of the analysis and the quality index for the mission itself.
- *Other Informations*:
  - *Device Status*: informations about the status of the device; it shows if the system is acquiring or in standby. If the mission is not ended you'll see the message *SYSTEM IS ACQUIRING*, otherwise there will be written *SYSTEM IN STANDBY*.
  - *Serial Number*: the serial number of the datalogger.
  - *Date and Time:* date and time of the internal clock of the device.
  - *Calibration Date*: the month and year of calibration of the device.
- *Other Data*:
  - *Sender:* the company or the person who sent the datalogger.
  - *Receiver:* the company or the person to whom the device is destined.
  - *Operator:* it shows the code or the name of the operator who programmed the mission.
- *Objects/Sites*: here you'll find the list of objects and sites monitored plus the notes typed in by the operator who started the mission.
- *Mission notes:* here, the operator who download the acquisitions can write his own notes, without changing the mission data. There are three more fields that can be set in *Configuration* (p.18) too.

Graph

Here you'll see the *Graph* of the acquisition. The *Graph* can display all the acquisitions recorded by the datalogger.
There are three or four lines:

- red line: the maximum threshold set during programming;
- blue line: the minimum threshold set during programming;
- black line: the acquisitions recorded (in the *TempStick²* is the temperature of the internal Probe, marked as *External-Environment* in the legend);
- dark red line (only for the *TempStick²*): line of the external probe, marked as *Internal – Product* in the legend.

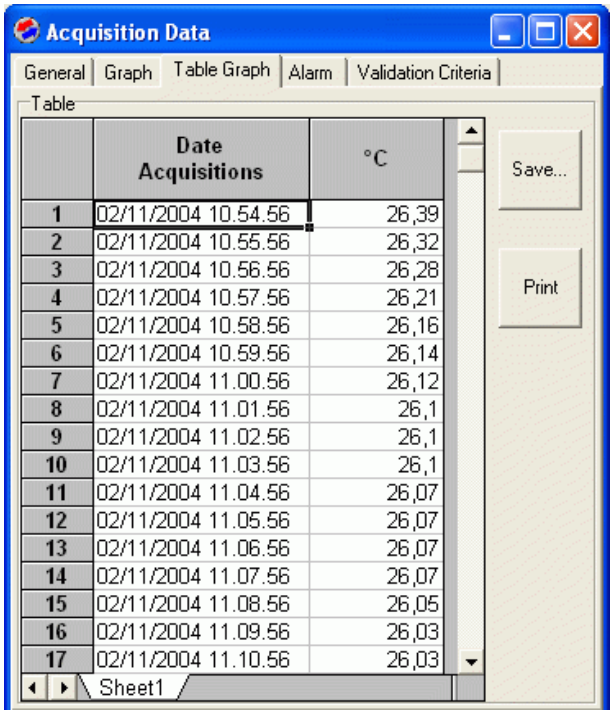


You can copy the graph to the clipboard and then paste it in a different program (*MS Word*, *MS Excel*, *Paint*, etc.). Click on **Copy** and then , after you opened the program you wish to copy the graph to, click on **Paste** (or on **Edit – Paste**). It i s possible to display a grid in the graph by selecting vertical and/or horizontal lines on the right part of the window. You cans et the frequency of the grid: for the vertical lines you can set the minutes, for the horizontal the degrees.

Table Graph

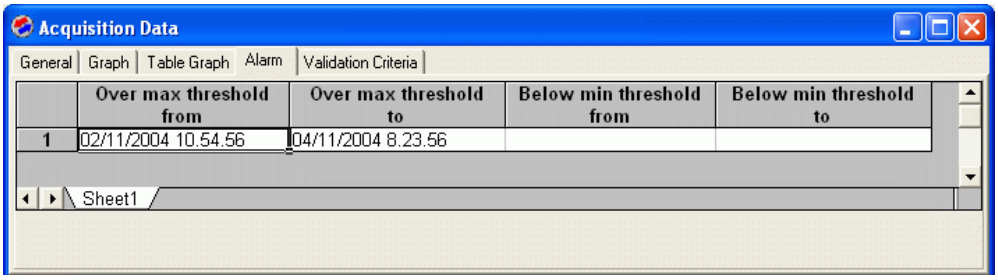
These are the data that you saw in graph format in the previous label: there is the *Date Acquisitions*, along

with the time and the temperature (or temperatures, if you are using a *TempStick²*), expressed in °*C*. You can save this table in *MS Excel* format by clicking on the **Save...** button and, after you chose where to save the file, give it a name and then click on **Save** to proceed. Double clicking on the header of the columns, the *Header Name* window will open and you can type in a new name for it. Click **OK** to confirm or **Cancel** to cancel. You can print the table on the default printer by clicking the **Print** button.



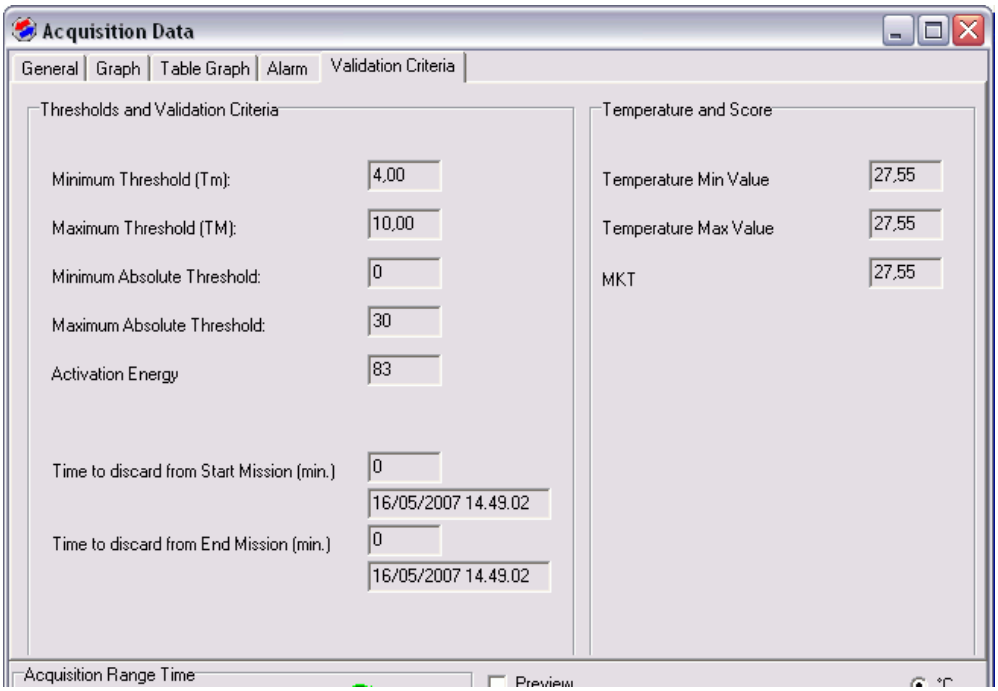
Alarms

Here there is the list of each time the recorded temperature has gone out of the range of the set thresholds. Clicking on **Print** it is possible to print this table.



Validation Criteria

In the last tab you'll find all the set Validation Criteria and the result of the transport quality. The criteria are calculated on the external probe in the *TempStick²*.



- *Thresholds and Validation Criteria*:
  - *Minimum Threshold (Tm):* the set minimum temperature threshold.
  - *Maximum Threshold (TM):* the set maximum temperature threshold.
  - *Minimum Absolute Threshold*: the set minimum temperature limit below which the transport is refused.
  - *Maximum Absolute Threshold*: the set maximum temperature limit above which the transport is refused.
  - *Activation Energy*:: the activation energy of the transported product.
  - *Time to discard from Start/End Mission (min.)*: the initial/final transitory that have to be discarded.

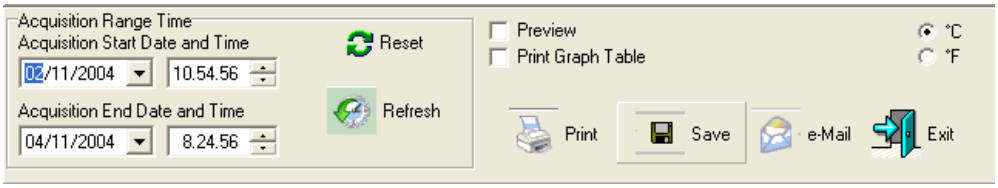
At the end there is the algorithm to calculate the mission score.

- *Temperature and Score*:
  - *Temperature Min Value:* the lowest temperature registered by the datalogger.
  - *Temperature Max Value: t*he highest temperature registered by the datalogger.
  - *MKT*: the MKT value of the current mission.

Note: to know more regarding the use of the validation criteria, the MKT and the meaning of all other parameters, please refer to the chapter *The Validation Criteria* at p.41.

The operations buttons

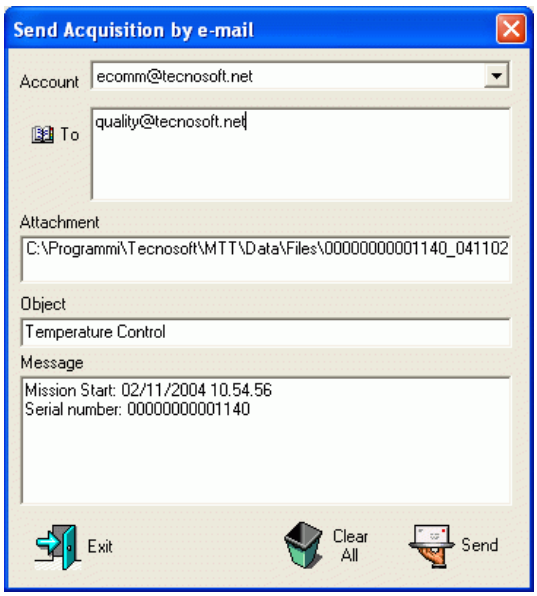
Common to all the above tabs is an area with a few buttons that allows you to act upon the acquisitions.



On the left there is the *Acquisition Interval* box, divided in two parts, each consisting of two fields: in the upper part, labeled *Acquisition Start Date and Time* you may set the date and time that are used as the starting point for displaying the graph and table. The next field, labeled *Acquisition End Date and Time* (page 18) work in the same way, but this value determines the end point of the graph/table display. Note that the changes do not affect the actual readings, but simply those being displayed. Incorrect intervals might result in no data being displayed, although the data is still available in the device.

After applying the changes necessary click on the **Refresh** button in the right part of the box.
On the right side of this area we find four buttons.
The **Print** button will print a report of the acquisition with all the parameters and the graph. If the *Preview* (see page 23) option is selected, the *Print Preview* window will open, where you may select the *Print Graph Table* option, in which case the table will also be included in the report.

The second button, **Save**, allows you to save the acquisition in the *Archive* (see page 29). Before being able to save an acquisition, the archive must have been initialized. To do this go to initialize the archive (see page 15).



The third button, **e-Mail**, allows you to send the acquisition to a remote user by e-mail. The file can only be opened with MTT2 software, and therefore the receiver must have a copy of the program. After clicking this button, the *Send acquisition by e-mail* window will open. *MTT* software uses *Outlook Express* as the source for e-mail settings, and therefore this program must be configured properly for *MTT* E-mail client to work. The New message window will open before the acquisition file is sent.
Setting up an account on *Outlook Express* is very easy, since the software will guide you through all the parameters you have to set. If you don't have an Internet connection or an e-mail account, you won't be able to use this option.
In the first field, *Account*, select with which address you want to send the file. If you have more than one account set up in *Outlook Express*, the list will hold all the possible addresses. In the next field, *To*, type in the receiver's address: clicking on *To* will open the *Outlook* address book. The attached file is the acquisition file you have just saved; the subject is the title of the mail and the text is the text message: both these fields can be edited.

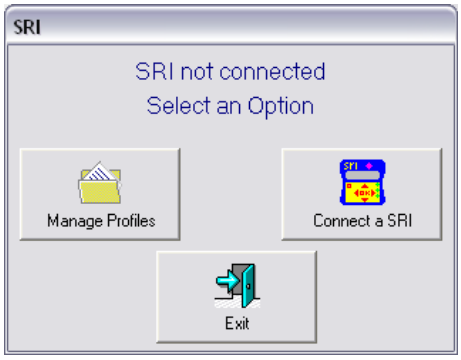
As soon as you select a receiver, click on **Send** and *Outlook*'s new message window will open. Click on **Clear All** to empty all the fields (you will have to type in new values) or choose **Exit** to cancel the operation.

The Print Preview Window

When you click on **Print** with the *Print Preview* option enabled, it will be opened a window with the same name (*Print Preview)*, where you can see the acquisition report that you're about to print. In the main part of the window there is the document, while in the upper bar there are some functions buttons. The first one, **Zoom to fit**, display the document so that it is visible completely on the screen. The second one, **100%**, zoom the document to its real dimensions, while **Zoom to width** zoom the document so that it's large as much as the window is. The next four buttons allows you to switch between pages: The first and last arrow bring you to the first and last page, the central ones can scroll one page after another. The **Printer Setup** button allows you to select the printer on which you wish to print the report; the **Print** button send the document to the printer. **Save Report** and **Load Report** allows you to save and load the report file, while **Close** closes and cancel the print operation.

SRI Functions

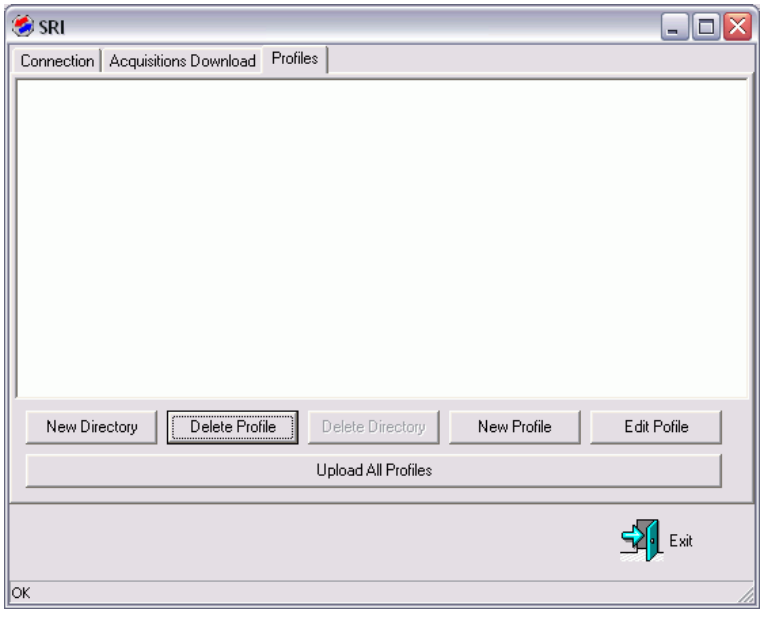
The main new feature in this version of *MTT* is the new *SRI* function by which you may communicate with an *SRI* unit. The software automatically detects connected *SRI* units after clicking the **SRI** button. If there are no units connected you will be presented with a window holding three buttons.



Apart from closing the window by means of the **Exit** button, you may connect an *SRI* to the PC and then proceed with configuring the unit or downloading the data, by means of the **Connect an SRI** button. Alternatively you may create new profiles for data logging missions that may be programmed into the SRI unit at a later date, using the **Manage Profiles** button.

The Profiles

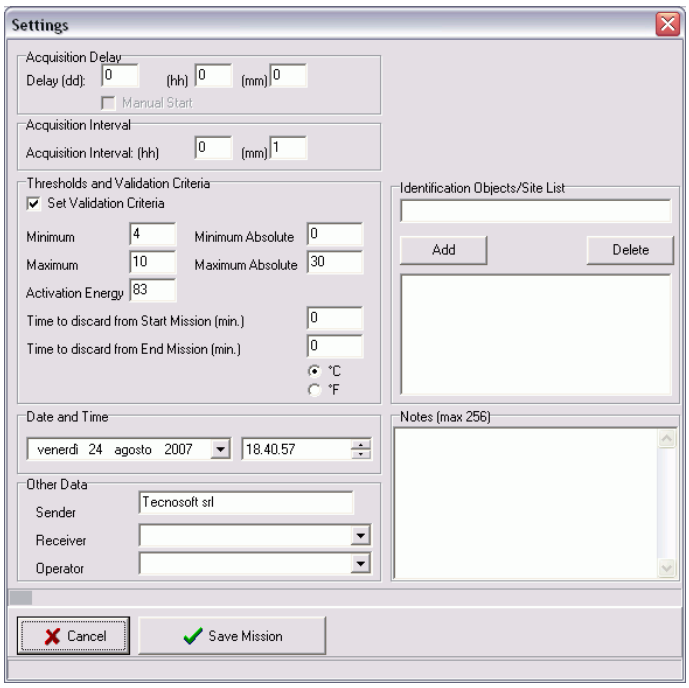
If there is no *SRI* unit connected to the PC, click on the **Manage Profiles** button, alternatively click on the tabsheet labelled *Manage Profiles* if a unit is connected to the PC. Using this window you may create and manage profiles for data logging missions.



Initially you will not have any profiles saved and therefore the central part of the screen will be blank. Below this you will find buttons that are used to manage the profiles as well as the button **Program all profiles** which becomes active only if an *SRI* is connected. To close the window use the **Exit** button.
The profiles are managed in a hierarchical manner with three levels, similar to a directory with sub-directories. The first level holds those profiles that do not belong to a particular category, and appear as the root elements of the tree-view list. The second level holds a series of folders that may be used to group related profiles (for example relating to a specific product type or transport conditions). The third level offers a further subdivision for more specific sorting of the profiles.

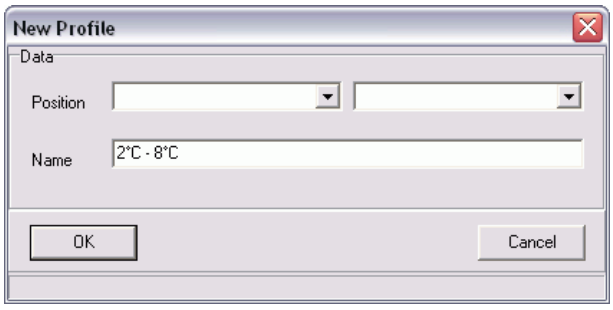
Creating a Profile

There are two possible operations at this stage: creating a folder or a profile. To create a new profile click on the button **New** Profile to open the related window, *Settings,* that is similar to the window used to launch new missions (see page 17).



The main differences with respect to the new mission window are that the field holding the serial number of the device is not present, and the button previously labelled **Start Mission** has been replaced by **Save Mission**. Once you have completed the fields for your profile, click on the **Save Mission** button to create the profile, the program will now ask you to assign a name to this profile.

In the next window (ignore the two upper fields for now), type the name for this profile in the third field. We suggest that you give the profile a name that will be representative of the profile contents, such that the operator selecting the profile will be able to identify it easily when programming a mission using the *SRI*). Click **OK** to proceed.



Your profile is not visible in the tree-view and is located at the first level.

Editing a Profile

If you would like to change parameters within a profile, click on the **Edit Profile** button. The same *Settings* window will appear: make the changes as desired and then click on **Save Mission**.

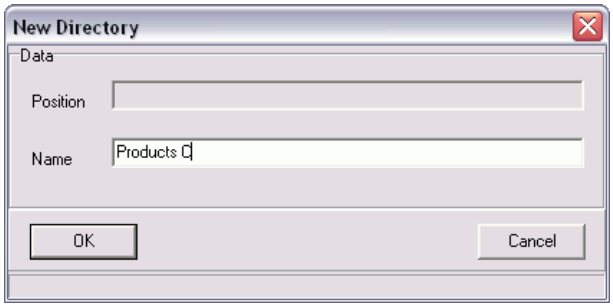
Deleting a Profile

To delete a profile select it from the list and then click on **Delete Profile**. The profile will be immediately removed from the list.

Creating a folder

Click on the **New Folder** button. The field labelled *Position* cannot be changed, since it is created on the

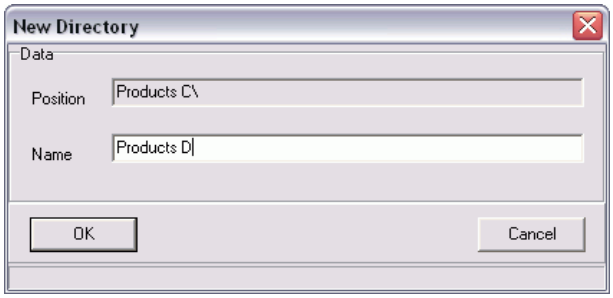
second level and is therefore added to the folder in the first level. Type the name you wish to assign to this folder in the *Name* field and click **OK**.



The folder will be added to the list.

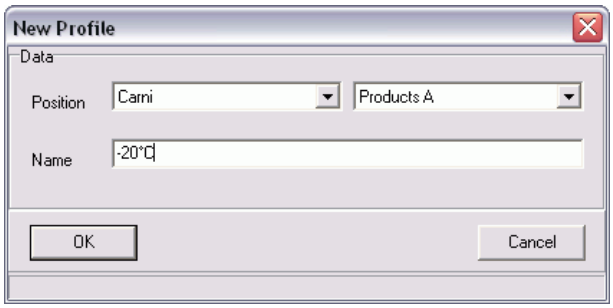
Creating a subfolder

To create a subfolder, select the folder within which you want to create the new folder, and then click on the **New Folder** button. The field labelled *Position* now holds the name of the parent directory. Type the name for the new subfolder in the *Name* field and click **OK**.



Creating a profile in a folder or subfolder

After creating the folder and subfolder that will contain the profile, click on the **New Profile** button. There is no need to select the folder. After entering the desired parameters for the profile, click on **Save Mission**, you must now assign a name to the profile: in the first two fields select the folder and subfolder respectively in which you want the profile to be placed. If you do not specify any folders the profile will be created in the first level.



Configuring the SRI

Ensure that the *SRI* is connected to the PC using the USB lead (see page 34) and click on the **SRI** button in the main window. The program will automatically recognize a connected *SRI* and the corresponding window will open with all the three tabsheets available: *SRI Connection*, *Download Acquisitions* and *Profile management*. Click on the *SRI Connection* tab. This page holds information related to the connected *SRI*.

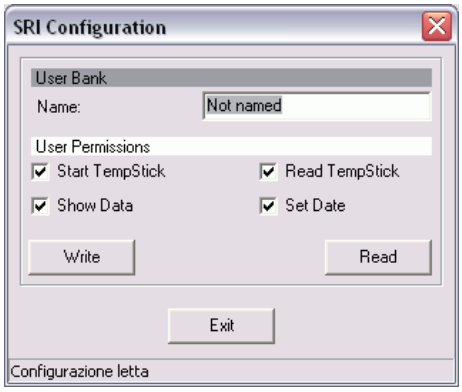
- *Firmware*: the firmware version
- *Name*: the name assigned to this *SRI*
- *Date and Time*: use this field to check whether the device is synchronized properly
- **Update**: if you have changed any of the parameters for the unit, click on this button to refresh the

display

If you disconnect the device from the PC, and then re-connect it and try to perform any operation that communicates with the unit, you will receive an error message. To reconnect you must close the window and then reconnect using the **SRI** button on the main window.

Changing the SRI name and access rights

Click on the **Set Name** button to open the *SRI Settings* page.



- *Name*: type the name for the *SRI* unit
- *Start TempStick*: select this option if you would like the *SRI* to start missions
- *Read TempStick*: select this option if you would like the *SRI* to download data
- *View Data*: select this option if you would like to be able to view mission data on the *SRI* (graph/table of readings)
- *Set Date*: select this option if you would like to be able to set the date and time directly on the *SRI*

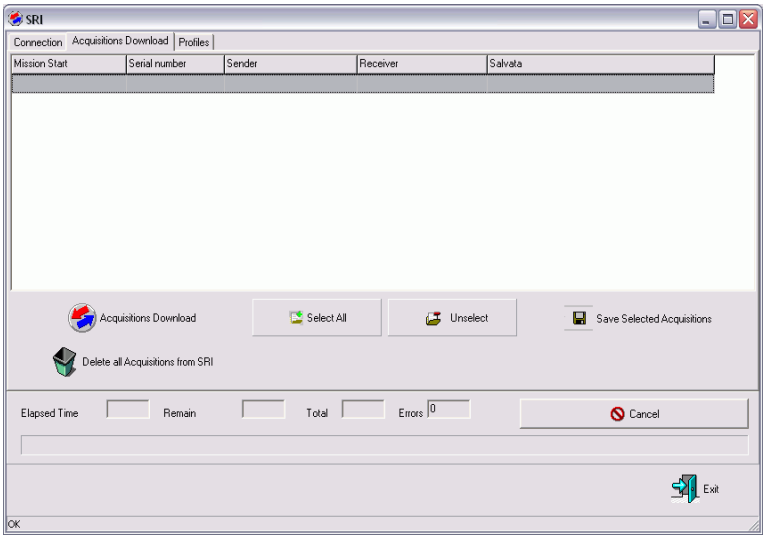
Click on **Set Unit** to confirm the changes or on **Read** to read the current settings held by the unit. Click on the **Exit** button to close the window. In the *SRI* window, *SRI Connection* sheet, you may click on **Refresh** to view the changes you have made.

Set Date and Time

Click on the **Date and Time** button to send the time settings of the PC to the *SRI*. Ensure the PC holds the correct date and time. To view the changes click on the **Update** button.

Downloading data from the SRI

An *SRI* unit may contain hundreds of *TempStick* missions; this data can be saved and archived in the *MTT* software. Ensure the unit is connected to the PC and click on the **SRI** button and then choose the tab *Download Data*.



The program will start downloading data from the *SRI*, and you will note that the table will start to fill up with downloaded missions. Click on the **Select All** button and then on the **Save Selected Acquisitions** button

(you may also select one or more missions independently). The column labelled *Saved* will be countersigned with an *OK* sign indicating the particular mission is already saved in the database.

Deleting data from the SRI

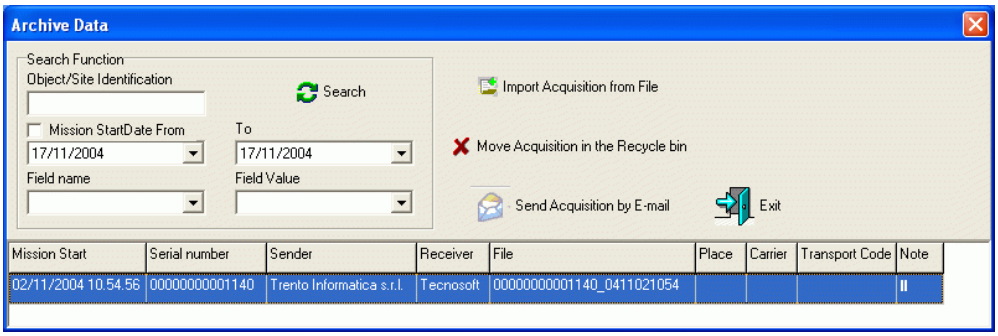
Click on the button labelled **Delete all Acquisitions from the SRI** to remove all acquisition related data from the unit.

Loading profiles on the SRI

Connect the *SRI* to the PC and click on the **SRI** button, then select the tab *Profile Management*. The button labelled **Program all profiles** is now available, and therefore you may load the profiles on the unit: note that existing profiles on the *SRI* will be deleted or updated if they are different to those being programmed.

Data Archive

When an acquisition is saved, after the data is downloaded off the datalogger, the saved files are stored in the *Data Archive*. Before you can start saving data in the archive you must reset the archive (see page 15).



Clicking on the **Archive Data** button will open a new window. This window displays a list of acquisitions that have been saved. Search facilities are provided in the top-left area of this window. These functions enable you to quickly locate and view a particular acquisition.
You can perform a search based upon the name (or code) you had added to the list *Object/Site Identification* in the New Mission window. This is done by entering that particular entry in the *Object/Site Identification* field (see page 18).
You may also search for a particular acquisition by the *Mission Start Date*. To do this you must select the checkbox next to the *Mission Start Date From* label. If you do know the exact date you may fill in the *Mission Start Date From / To* fields with the same date. If you do not remember the exact date you may narrow the range by means of the same fields. Only those acquisitions whose start date falls within the specified range will be displayed.
You may also perform searches by means of the various fields that are used to identify a mission. To this this select a field name by using the *Field Name* drop down list, and then select an entry for that particular field name in the drop down list labelled *Field Value*. This list will only display values saved in at least one acquisition, which means that if you have not assigned a value to the particular field the list will be empty. For example, if you select in the field name *SENDER* from the first list, the list *Field Value* will display all the values listed in that column of the database. After you have set your search parameters, click on the **Search** button to start the search. If the database list appears empty, it means that none of the saved acquisitions match the parameters you have set.
If you receive an acquisition file by email or on a diskette, you can add it to your database by clicking on **Import Acquisition from File**. The next window will allow you to choose the path from which to import the file. If, on the other hand, you would like to save a particular acquisition on diskette, you must locate the *Data/ Files* folder, in the main program folder, and copy the required file manually. The field *File* in the database list holds the file name for the acquisitions, an you may therefore locate the correct file by means of this parameter (see page 19).
To view the details of an acquisition you simply double click on the entry in the database list. A window identical to the Acquisition Data window will appear holding the details for that acquisition.
The other buttons present on this window are:
Move the Acquisition in the Recycle bin which deletes the selected acquisitions from the list. The files are not permanently removed, and may be imported again by clicking on the **Import Acquisition from File button** and searching for the file in the *Data\Del* folder, in the main directory of the program (which by default is *C:\Program Files\Tecnosoft\MTT3*).
The **Send Acquisition by E-mail** will create a new message window and attach the selected acquisition (see page 23).
To close the *Archive* window click on **Exit**.

On-line Help

Click on the **Help** button to open the *On-line Help* window. Browse through the various items to get to know the program in detail and learn about the available functions. The *On-line Help* pages are similar to web site pages, with hyperlinks that jump from one page to another.

Informations

Clicking on **Info** from the *Main Window* will open a dialog displaying program version details and the End User License Agreement.

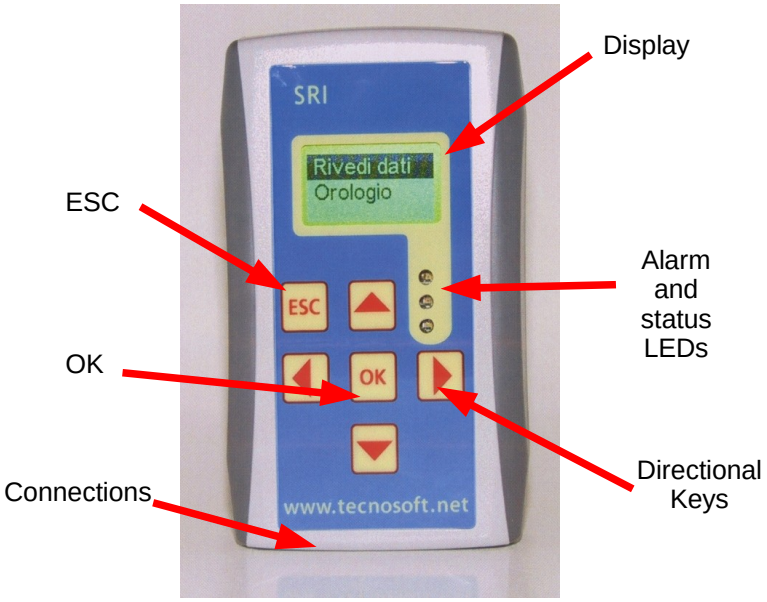
Closing the program

To close the program just click on **Exit**, or on the **X** in the *Main Window.*

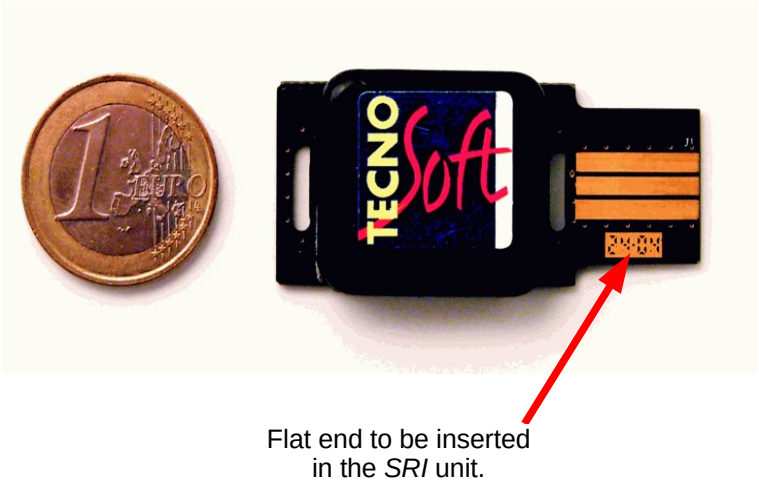
Interface and dataloggers manual

Description of the SRI device and the dataloggers

An *SRI* unit (*Starter&Reader Interface*) may be configured in one of three modes: *Programmer/Reader, Programmer* or *Reader.* The *SRI* is equipped with a display and, depending on whether it is configured as *Programmer, Reader* or both, may start new missions whose parameters may be selected from a list of profiles, and download the data from the *TempStick* devices.



The system is completed by means of the *TempStick* miniature temperature dataloggers.



The technical characteristics of *TempStick* are:

Size	50 X 22 X10 mm
Temperature Range	-30 °C ÷ +65 °C
Resolution	0,03 °C
Accuracy	+/- 0,25 °C with calibration certificate +/- 1 °C without calibration certificate*
N° of acquisitions	2730
Acquisition rate	From 1 reading per minute to once every 255 minutes
Battery Autonomy	10 years or 3.000.000 acquisitions
Mission Duration	From 1 day, 21 hours (acq. Rate 1 minute) to 483 days with acq. rate 255 minutes
Protection Grade	IP67

* post production data without calibration

Connecting the device

The *SRI*, as well as the *Mission Starter* unit, connects to the PC by means of a USB cable, and therefore the PC must have at least one USB port free. The cable supplied has two different extremities: one connector is larger and flat whilst the other is smaller. The first should be inserted in the USB slot of the PC whereas the second is to be inserted in the unit. Once connected the PC recognizes the *SRI* unit and communication may begin.

Installing the USB drivers for the SRI

To install the drivers, connect the cable to the *SRI* unit, and then to the PC. Windows will detect the presence of a new device and will ask you to install the driver. Proceed as follows depending on whether your PC uses Windows 2000 or XP as an operating system:

- Windows XP:
  - A window entitled *New Hardware* Wizard will open; select *No, not now* and click on **Next**
  - If it is the very first time you are installing an *SRI* on this PC, select the second option, *Install driver from a list or known location (advanced users)* and click on **Next;** if you have already installed the *SRI* driver but you have connected the cable to a different USB port, select the first option and click **Next**
  - Select *Search for the best driver* and enable both of the next options that appear; click on

Browse and select the folder *SRI drivers* in the CD ROM supplied. Click on **Next**
    - Click on **Next** to start installing the driver
    - Click on **Finish** to complete the installation
- Windows 2000:
    - The *New Hardware Wizard* will appear, click on **Next**
    - Select the first option, *Search for a suitable driver (recommended)* and click on **Next**
    - Select *Specify a path* and click on **Next**
    - Select the folder *SRI drivers* from the installation CD ROM and open the folder in the field that appears; click **OK** to proceed
    - Click on **Next** to start the installation process
    - Click on **Finish** to complete the installation

Connecting the TecnoStick Interface

In the *TempStick* package there is an interface able to read and transmit to the PC the acquisition data from the datalogger. There is a serial or USB cable to connect it to the computer to connect to a free serial or USB port on your PC.

To read the datalogger's data you have to insert the flat end of the device in the interface. You can insert the logger from both sides.

Installing the USB drivers for the TecnoStick Interface

To install the drivers, connect the cable to the *TecnoStick Interface*, and then to the PC. Windows will detect the presence of a new device and will ask you to install the driver. Proceed as follows depending on whether your PC uses Windows 2000 or XP as an operating system:

- Windows XP:
    - A window entitled *New Hardware* Wizard will open; select *No, not now* and click on **Next**
    - If it is the very first time you are installing an *TecnoStick Interface* on this PC, select the second option, *Install driver from a list or known location (advanced users)* and click on **Next;** if you have already installed the *TecnoStick Interface* driver but you have connected the cable to a different USB port, select the first option and click **Next**
    - Select *Search for the best driver* and enable both of the next options that appear; click on **Browse** and select the folder *TecnoStick drivers* in the CD ROM supplied. Click on **Next**
    - Click on **Next** to start installing the driver
    - Click on **Finish** to complete the installation
- Windows 2000:
    - The *New Hardware Wizard* will appear, click on **Next**
    - Select the first option, *Search for a suitable driver (recommended)* and click on **Next**
    - Select *Specify a path* and click on **Next**
    - Select the folder *TecnoStick drivers* from the installation CD ROM and open the folder in the field that appears; click **OK** to proceed
    - Click on **Next** to start the installation process
    - Click on **Finish** to complete the installation

Connecting the datalogger to the interface

To connect a *TempStick* datalogger to an *SRI* or *Mission Starter* interface, simply insert the flat end of the datalogger in the appropriate slot (next to the USB connector) on the interface. The direction in which you insert the datalogger is irrelevant. Once you have completed the setup or download operations, remove the datalogger from the slot.

Replacing the batteries

To replace the batteries, open the battery cover at the back of the interface by pressing on the arrow and sliding the door in the direction indicated by the arrow. Remove the existing batteries and replace them, taking care to use the correct polarity. Replace the cover. You will have to set the date and time on the unit again (for *SRI*).

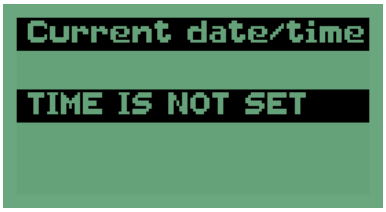
The reset button is located underneath this slot

Using the *SRI*

The *Starter&Reader Interface* is equipped with a display, three LEDs and 6 keys. The display shows information upon the device status or that of the mission being analysed, the graph or table of readings and the menu's for the unit functions. The green LED is activated, along with the buzzer, when a device has been correctly programmed. The red LED becomes active if a communication error occurs of if the batteries are low. In the latter case replace the batteries immediately.
The keys are used to browse the menu's (four direction keys), to select menu entries (**OK** button) or to abort operations or exit screens (**ESC** button).
Below is a detailed explanation of the various *SRI* functions. **The images shown are for an *SRI* configured in the *Programmer/Reader* mode. If your *SRI* is not in this mode some features shown will not be available.**

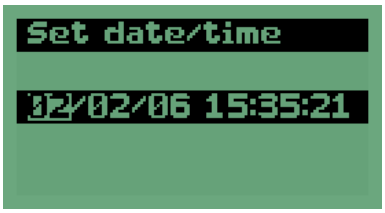
Setting the Date and Time

After replacing the batteries, you must set the time on the unit. The following window will appear:



Click **OK** to open the next window where the date and time are to be set. To change the date and time at any stage, with the display off click **OK** and in the following window select *Clock* and click **OK.**

In the *Date and Time* window, use the left and right keys to select the different parts of the date and time, the up and down keys to change the selected numbers and the **OK** button to enter the changes.



Click **OK** to confirm the change. Press **ESC** to exit the screen.

Starting a Mission (only for *Programmer mode*)

Insert the *TempStick* in the unit: the unit will detect this action and bring up the programming window. If this does not appear, remove and re-insert the datalogger.
N.B: if the *SRI* is programmed as a simple *Programmer*, once the *TempStick* is inserted, the window where you may select the profile to be used will appear first.

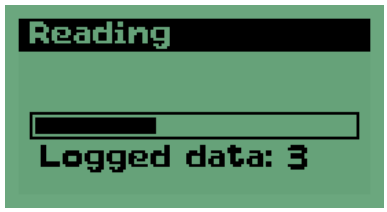
The *Start* entry is already selected, however if this is not the case use the directional arrows to select it (see picture) and then press **OK**. A list of available profiles will appear and you may select one of these to be used to program the datalogger. If there are no profiles available the *No Programs* message will appear. Use the directional arrows to select the profile and press **OK**.

The programming procedure will begin, this takes a few seconds after which a program success message will appear, along with the green LED and the beeper.

You may now remove the datalogger and program another one.

Downloading data from a *TempStick* (Only for *Reader* mode)

Insert the *TempStick* in the unit and select the entry *Read.* The *SRI* will start downloading data from the device.
N.B: if the *SRI* is configured as a simple *Reader* only, once the TempStick is inserted the download of data will automatically begin.



Once the data is downloaded, a window that evaluates the transport will appear. The centre of the screen will show the message *BAD* if the transport conditions where not optimal, alternatively *OK* will appear. In the former case the reason for the rejected transport will appear below the message (If there is more than one reason, the most significant reason will be shown) The data downloaded is automatically saved in the unit memory.

Click on **OK** to view some information relating to the mission, as well as the data that has been downloaded. There are four menu items: *Statistics*, *Information*, *Graph*, *Table*.

Statistics Window

This window will show the most important parameters of the profile with which the device has been programmed. You may scroll the window up and down using the directional keys.

The parameters show are:

- *Quality*: Quality index for the mission

- *Score*: score for this mission, to be deducted from the score assigned at the start of the mission
- *Maximum Score*: Score assigned at the start of the mission
- *Maximum Threshold*: Maximum limit for correct conservation
- *Minimum Threshold*: minimum limit for correct conservation
- *Abs. Max Threshold*: Absolute maximum limit that cannot be surpassed
- *Abs. Min Threshold*: Absolute minimum limit that cannot be surpassed
- *Discard Start*: minutes to be excluded from the start of the mission for score calculation
- Discard End: minutes to be excluded from the end of the mission for score calculation
- *Exponent k*: Exponent for quality calculation (see page)
- *Maximum Duration:* The maximum duration allowed for this transport

To exit the window press **ESC**.

Information Window

These entries are used to identify the mission being shown, based upon the data inserted when the mission was started.

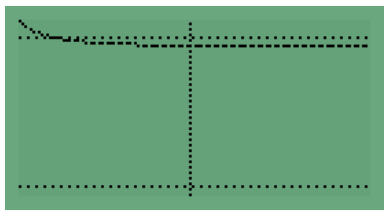
The information shown is:

- *Sender*: the firm that sends the items being monitored
- *Address*: the receiver of the goods
- *Operator*: the operator that started the mission
- *Notes*: additional information
- *Objects*: objects or sites monitored

To exit the window press **ESC**.

Graph Window

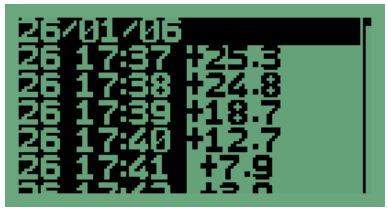
This windows holds a simple but effective graphical representation of the data downloaded. The temperature thresholds are also shown to aid the analysis. You may zoom into the graph using the up and down buttons. Once the zoom is set, you may scroll left and right using the directional keys.



To exit the window press **ESC**.

Table Window

This window holds a table of all the data points taken by the datalogger. The table holds the date and time and the corresponding temperature value. Use the up and down keys to scroll within the table. The black lines indicate a new day has started and the date is shown within the line.

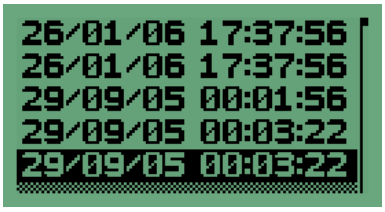


To exit the window press **ESC**.

Viewing data off saved missions

In order to view the data stored in the *SRI*, you must first ensure that there is no datalogger connected to the

unit. Select the *Review* entry (press **ESC** to exit windows if you are not in the main menu; if the *SRI* is off, press **OK** and then select **Review**). A window will appear holding a list of saved missions identified by means of the date, time, serial number and other entries (*Sender*, etc...).



To view all the parameters, select the required entry and use the left and right keys to scroll. Once you choose the mission, press **OK** to open the viewing page.

Turning the *SRI* off

To switch off the *SRI*, press **ESC** until you have exited all the menus, and then press **ESC** again to turn the unit off.

Resetting the device

The reset button is located at the back of the unit, and is only accessible once the battery cover is removed. Using a thin object (such as a paperclip) press the button that is located underneath the slot in the battery compartment. The device will be reset, however the items in memory are not deleted.

The Validation Criteria

The *Validation Criteria* have been developed to provide the quality manager with a versatile tool that will automatically determine whether a specific product, that requires constant temperature control, has been shipped or stored correctly. The *Validation Criteria* provide for specific parameters and a simple algorithm (the MKT formula) that *MTT* software will use to determine whether a shipment or storage was detrimental to the product quality.
These parameters are derived from international reference standards: *NCCLS H18-A3 Vo. 24 No. 38 "PROCEDURE FOR THE HANDLING AND PROCESSING OF BLOOD SPECIMENS"; Approved Guideline - 3rd Edition"* and *NCCLS GP16-A2 Vol. 21 No. 19 "URINALYSIS AND COLLECTION TRANSPORTATION, AND PRSERVATION OF URINE SPECIMENS"; Approved Guideline - 2nd Edition.*
These parameters would then be set by the user according to the product being monitored.

The temperature thresholds

MTT3 and above allows for four different temperature limits. The first two are the correct conservation temperature limits (max. and min.). Normally, these thresholds are very rigid, even if the product exhibits a degree of tolerance to higher or lower temperatures. The absolute min. and max. thresholds, on the other hand, are limits to which a product should never be subjected, otherwise the transport and the product itself will be refused since its integrity cannot be guaranteed. These latter limits normally cover a wider range than the first two, which allows for a tolerance margin.

The transport graph

A typical product conservation graph is divided in three parts:

- Initial transitory: the time from when the mission has started to when it is actually monitoring a transport or storage of the product
- Transport or storage
- Final transitory, from the end of the mission to the moment data is downloaded

When analysing the graph we can nearly always discard the first and final part and use the central part of the mission to evaluate the transport.
For automatic analysis of the acquisitions it is necessary to exclude the two transitory periods. Knowledge of the process and procedures relating to the use of *Tempstick* within the company, it is usually quite easy to predict the duration of these transitory periods. For example, if we do not set a delay when programming a new mission, and we know that after a device is programmed it takes around 20 minutes until it is placed in the area to be monitored (for example the *TempStick* is put in the product's box, the box is put on the truck, etc.), the initial transitory can be set to 30-40 minutes. In this way we can be almost sure that all those acquisitions that are not related to the actual monitoring of the products will be excluded.
The final transitory duration can be determined in a similar manner.

The activation energy

Activation energy of a given substance or product is a value that, when is reached, starts a given process. Usually it is a value between 60 and 100: it is recommended a standard value of 83.

How to set the other mission parameters

The only other parameters related to the validation criteria are the delay and the acquisition interval.
The program calculates the scores starting from the first acquisition, and not from the time the device has been programmed. The delay period is therefore automatically ignored.
Since the datalogger takes readings depending upon the value of the acquisition interval, it assumes a worst case condition and extends the duration of a recorded temperature for the duration of the whole interval until the next sample is taken. If, for example, we consider the product used in the examples above, if a sample taken at a certain time read 28 degrees, and the next sample, taken after 20 minutes, reads 4 degrees Celsius, the program will assume that the product was at 28 degrees for 20 minutes. It is most probable that it wasn't, however it has no means of knowing the value of samples in between readings and will therefore assume the worst case scenario.

MEAN KINETIC TEMPERATURE

Mean kinetic temperature (MKT) is defined by the ICH as "*A single derived temperature that, if maintained over a defined period of time, affords the same thermal challenge to a drug substance or drug product as would be experienced over a range of both higher and lower temperatures for an equivalent defined period. The mean kinetic temperature is higher than the arithmetic mean temperature and takes into account the Arrhenius equation.*"
Hence, the mean kinetic temperature may be considered as an isothermal storage temperature that simulates the non-isothermal effects of storage temperature variation. It is not a simple arithmetic mean but involves exponential and logarithmic relationships.
The Haynes formula can be used to calculate the MKT. It is higher than the arithmetic mean and takes into account the Arrhenius equation from which Haynes derived his formula. Thus, MKT is the single calculated temperature that stimulates the non-isothermal effects of storage temperature variations.

$$T_k = \frac{\Delta H / R}{-\ln \frac{e^{\frac{-\Delta H}{RT_1}} + e^{\frac{-\Delta H}{RT_2}} + \ldots + e^{\frac{-\Delta H}{RT_n}}}{n}}$$

Tk = MKT in ºK
ΔH = Heat of activation / activation energy
R = Universal gas constant (8.3144 ·10-3 kJ.Mole-1 · ºK-1)
T_i = temperature in ºK
n = Total number of equal time periods over which data are collected

Mean kinetic temperature refers to a reference point, which can be calculated from a series of temperatures. It differs from other means in that higher temperatures are given greater weight in computing the average. This weighting is determined by a geometric transformation, the natural logarithm of the temperature number. Disproportionate weighting of higher temperatures in a temperature series according to the MKT recognises the accelerated rate of thermal degradation of materials at these higher temperatures. MKT accommodates this non-linear effect of temperature.
It is calculated from the average storage temperatures recorded over a time period and a running average calculated from the average of weekly high and low temperatures.
In order for MKT to be meaningful in anyway, an appropriate number of temperature / time sampling points should be used. MKT may only be applied in situations where temperature control of the storage area is good, but where occasional excursions do occur due to seasonal variation.
MKT may only be applied in cases where the scientific data regarding the thermal stability of the product in question, used to establish the original labelled storage conditions, permits limited excursions between 25ºC to 30ºC. The MA holder should be consulted as to whether these excursions affect the thermal stability of the products in question and hence whether or not the use of MKT is applicable.
Strict conditions should be applied to the use of MKT i.e.:

- It is only applicable to storage of products under controlled room temperature conditions (e.g. Those labelled "Do not store above 25ºC")
- MKT is not appropriate for use for products requiring controlled low temperature storage.
- MKT cannot be used to compensate for poor temperature control of storage facilities due to e.g. poor design
- Excursions outside labelled storage requirements for products should be documented and investigated and reported to the MA holder
- Actual storage temperatures should not exceed 30ºC at any point if MKT is to be applied. i.e. for an MKT of 25ºC excursions between 15ºC and 30ºC are permitted.

Troubleshooting

When I run MTT, the message “Printer selected is not valid” appears

When *MTT* software starts it immediately checks for the default printer, since in parts of the program one may send output to a printer. If the following message appears as soon as the program is started: “*Exception Eprinter in module Tmtt.exe at 00023CF2. Printer selected is not valid*”, the program is signalling that there is no local printer specified or that the printers defined on the particular PC are not currently connected.
The most common situation that generates this error message is if there are only network printers defined on a particular PC, and the computer is currently disconnected from the network. The error message also arises if a local printer is defined, however this is not configured as the default printer or if there is no local printer installed. You must click on the **OK** button to close the program. After this you must either connect the PC to the network such that the program may find the printers, or else add a local printer (even if this does not actually exist, that is it is not connected to the computer) and set it as the default printer.
To create a default local printer (there is no need to actually have the printer) open the windows *Control Panel* (**Start – Settings – Control Panel** on Windows 2000 or **Start – Control Panel** on windows XP). Select the icon **Printers and Fax** (if you run Windows XP, change to the classic view mode by clicking on the command on the top left of the current window); if a local printer already exists, however this is not the default printer, set it as the default printer by right clicking on it and selecting Set as Default from the drop down menu.
If there is no local printer, click on the **Add Printer** icon, click on **Next** and select *Local Printer connected to the PC* (for Windows XP) or *Local Printer* (for Windows 2000). There is no need to actually posess or connect the printer). Uncheck the option *Automatically install plug and play printers;* click on **Next.** In the field labelled *Use the following Port* select LPT1 and click on **Next**. Select a printer manufacturer, in this case we suggest you select a renowned manufacturer to ensure windows already has the necessary drivers. Click on **Next** and select Yes when you are asked whether the printer should be set as the default printer. Choose the option *Do not share this printer* click **Next** and replay with No when asked to print a test page. Click **Next** again and the **Finish**. Wait for windows to complete the installation of the printer and then launch *MTT* again.

When I try to launch a new mission or download data using the TecnoStick Interface, I get an error message

There may be more than one cause to this problem. First of all you must ensure that the interface cable is firmly connected to the PC, that the interface is firmly connected to the interface and that the datalogger is inserted in the interface slot. If this does not solve the problem, make sure you have selected the correct COM port in the configuration page of *MTT*. If you are not sure which port is the correct one, follow the instructions given above under the heading *How to identify which COM port has been assigned to the interface.* If the problem persists, try changing the serial port to which you are connecting, if you have another available. You may also want to ensure that the port has not been damaged by trying to connect another serial device, if available.
Another cause could be that the serial port you have chosen is currently in use by another program, even though nothing is connected to it. This could happen if another program has been launched, possibly automatically on startup and which operates in the background. A typical program of this type could be synchronisation software between the PC and a PDA, in which case the software loads up on startup and locks the COM port in order to detect when a PDA has been connected. This type of program runs in the windows taskbar, close to the time display. Close the programs you suspect could be using the COM port and try running *MTT* again.
If you are using a USB to Serial adaptor, make sure you have installed the drivers correctly and that you have checked which port has been assigned to the adaptor.
If none of these solve the problem, please contact Tecnosoft technical support or your reseller for advice.

Company ISO 9001:2000 certified for firmware and software development